## CLAIMS

1. A hydrogen generating apparatus comprising a fuel feeding part, a water feeding part for fuel reforming, an oxidant gas feeding part, a reforming catalyst body, a heating part for said reforming catalyst, a CO shifting catalyst body and a CO purification catalyst body, the reforming catalyst body, the CO shifting catalyst body and the CO purification catalyst body being placed sequentially in the order from said fuel feeding part toward the downstream side, wherein,

a fuel and water are fed to said reforming part which has been heated,

an oxidant gas from said oxidant gas feeding part is mixed with each of said reformed gas introduced into said shifting part and a shifted gas obtained in said shifting part and introduced into said purification part, and

at least a part of said reformed gas and at least a part of said shifted gas are oxidized respectively in said shifting part and said purification part.

- 2. The hydrogen generating apparatus in accordance with claim 1, wherein a shifting catalyst of said shifting catalyst body contains as one component at least a platinum group-type catalyst.
- 3. The hydrogen generating apparatus in accordance with claim 1, wherein said apparatus has a shifting

catalyst temperature measuring part to measure the temperature of said shifting catalyst body, and the temperature of the shifting catalyst is controlled by controlling the amount of an oxidant gas to be mixed with said reformed gas.

- 4. The hydrogen generating apparatus in accordance with claim 1, wherein said apparatus has a purification catalyst temperature measuring part to measure the temperature of said purification catalyst body, and the temperature of the purification catalyst is controlled by controlling the amount of an oxidant gas to be mixed with said shifted gas.
- 5. The hydrogen generating apparatus in accordance with claims 1, wherein an oxidant gas from said oxidant gas feeding part is mixed with a fuel and water from said fuel feeding part and the water feeding part.
- 6. The hydrogen generating apparatus in accordance with claim 5, wherein said apparatus has a reforming catalyst temperature measuring part which measures the temperature of said reforming catalyst body and the temperature of the reforming catalyst is controlled by controlling the amount of an oxidant gas to be mixed with said fuel and water.
- 7. The hydrogen generating apparatus in accordance with claim 1, wherein each of said reforming catalyst body,

CO shifting catalyst body and CO purification catalyst body comprises a carrier having a honeycomb structure, foamed body structure or corrugated structure carrying a catalyst component.

- 8. The hydrogen generating apparatus in accordance with claim 1, wherein said water feeding part for fuel reforming feeds also air together with steam.
- 9. The hydrogen generating apparatus in accordance with claim 1, wherein said water feeding part for fuel reforming feeds only air.
- 10. The hydrogen generating apparatus in accordance with claim 1, wherein a scatter preventing means is provided at least between said reforming catalyst body and said CO shifting catalyst body or between said CO shifting catalyst body and said CO purification catalyst body.
- 11. The hydrogen generating apparatus in accordance with claim 10, wherein said scatter preventing means is a filter, and a pressure detecting apparatus which detects pressure loss of said filter is placed at the upstream side and at the downstream side of said filter.
- 12. The hydrogen generating apparatus in accordance with claim 11, wherein a temperature detecting apparatus is provided at a position near said filter.